

**Description of Independent Variables for Preliminary Case-mix Analyses, 2003**

<b>Patient characteristics</b> (ref=reference group for characteristics with 3 or more categories)	<b>Data source(s)<sup>1</sup></b>	<b>Binary (b) or continuous (c)</b>	<b>Models<sup>2</sup></b>
<u>Demographics</u>			
Age (years) on the 1st of the month			
<18	EDB, IDEN, ME	b	All (# 1-8)
18 to 44	"	b	All
45 to 59	"	b	All
60 to 69	"	b	All
70 to 79 (ref)	"	b	All
80+	"	b	All
Sex	EDB, IDEN, ME	b	All
Race	EDB, IDEN, ME	b	All
Native American	"	b	All
Asian	"	b	All
Black	"	b	All
White (ref)	"	b	All
Pacific Islander	"	b	All
Other	"	b	All
Unknown	"	b	All
Ethnicity	EDB, IDEN, ME	b	All
Hispanic	"	b	All
Not Hispanic (ref)	"	b	All
Unknown	"	b	All
<u>Duration of renal replacement therapy (RRT) on the 1st of the month</u>			
1st month of RRT (started RRT during current month)	ME, DF claims, IDEN	b	All
2nd month of RRT (started RRT during previous month)	"	b	All
3rd month	"	b	All
4th month	"	b	All
5th month	"	b	All
6th month	"	b	All
7th month	"	b	All
8th month	"	b	All
9th month	"	b	All
10th month	"	b	All
11th-13th month	"	b	All
2nd year	"	b	All
3rd year	"	b	All
3 years or more (ref)	"	b	All
<u>Body size measures</u>			
Body surface area, m <sup>2</sup> (Du Bois formula <sup>3</sup> )	ME	c	All
Body mass index <sup>4</sup> < 18.5 kg/m <sup>2</sup>	ME	b	All
<u>Laboratory values</u>			
Hematocrit, prior month	DF claims	c	All
Hematocrit at start of RRT	ME	c	All
<u>Functional status and health behavior</u>			
Inability to ambulate	ME	b	All
Inability to transfer	ME	b	All
Tobacco use - current smoker	ME	b	All
Alcohol Dependence within one year	Claims	b	All
Drug Dependence within one year	Claims	b	All
<u>Comorbidities</u>			
Cardiac Arrest within 12 months	Claims	b	All
Congestive Heart Failure within 12 months	"	b	All
Cardiac Dysrhythmias within 12 months	"	b	All
Ischemic Heart Disease within 12 months	"	b	All
Pericarditis within 12 months	"	b	All
Cerebrovascular Disease within 12 months	"	b	All
Diabetes (Primary or Contributing) within 12 months	"	b	All
Peripheral Vascular Disease within 12 months	"	b	All
Chronic Obstructive Pulmonary Disease within 12 months	"	b	All
AIDS within 12 months	"	b	All
HIV Positive Status within 12 months	"	b	All
Aspiration and Specified Bacterial Pneumonias within 6 months	"	b	All
Hepatitis B within 12 months	"	b	All
Other Hepatitis from 1999 to present	"	b	All
Opportunistic Infections within 6 months	"	b	All
Pneumococcal pneumonia, emphysema, lung abcess within 6 months	"	b	All
Septicemia/Shock within 6 months	"	b	All
Other infections within 6 months	"	b	All
Gastro-Intestinal Tract Bleeding within 6 months	"	b	All
GI Ulcer - no hemorrhage within 6 months	"	b	All

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Esophageal Varices within 6 months	"	b	All
Acquired Hemolytic Anemias within 12 months	"	b	All
Hereditary Hemolytic Anemias from 1999 to present	"	b	All
Sickle-Cell Anemia from 1999 to present	"	b	All
Other Anemias within two years	"	b	All
Leukemia within 12 months	"	b	All
Lung, Upper Digestive Tract, and Other Severe Cancers within 12 months	"	b	All
Lymphatic System, Head, and Other Major Cancers within 12 months	"	b	All
Lymphoma within two years	"	b	All
Metastatic Cancers within 12 months	"	b	All
Multiple Myeloma within 12 months	"	b	All
Breast, Prostate, Colorectal and Other Cancers within 12 months	"	b	All
Hyperparathyroidism within 12 months	"	b	All
Monoclonal Gammopathy within 12 months	"	b	All
Myelofibrosis within 12 months	"	b	All
Myelodysplastic Syndrome from 1999 to present	"	b	All
<b>Prior health care utilization</b>			
Hospitalized during prior month	Claims	b	All
<b>Type of patient month</b>			
Full month HD, no events (ref)	EDB, ME, DF claims, Inp SAF, SRTR, SIMS, DN, SSDMF	b	# 4,6
Full month PD, no events	"	b	# 4,6
Start of dialysis during month	ME, DF claims, IDEN	b	# 4,6
Transplant during month	Inpatient SAF, SRTR, SIMS	b	# 4,6
Death or withdrawal from dialysis during month	DN, SSDMF, SIMS	b	# 4,6
Hospitalization only during month	Inpatient SAF	b	# 4,6
Modality switch during month	DF claims	b	# 4,6
Transfer between facilities during month	DF claims	b	# 4,6
Training during month	DF claims	b	# 4,6
Multiple events during month	EDB, ME, DF claims, Inp SAF, SRTR, SIMS, DN, SSDMF	b	# 4,6
Unexplained low number of sessions during month	"	b	# 4,6
<b>Prior EPO dose response</b>			
Ratio of average EPO dose to average hematocrit during April-June 2002	DF claims	c	# 3E
<sup>1</sup> <b>Key to data sources</b> EDB = CMS Enrollment Database IDEN = REMIS Patient Master File ME = ESRD Medical Evidence Form, also known as the 2728 Form Claims = CMS Inpatient, Outpatient Institutional (includes dialysis facility claims), Skilled Nursing Facility, Home Health Agency and Hospice Standard Analytic Files (SAFs) and CMS carrier claims. DF claims = Medicare dialysis facility claims (type 72) from the Outpatient Institutional SAF. Inp SAF = CMS Inpatient SAF SRTR = Scientific Registry of Transplant Recipients SIMS = Standard Information Management System database DN = REMIS Death Notification database SSDMF = Social Security Death Master File  <sup>2</sup> <b>Models:</b> # 1: \$/session for EPO and iron (HD only) # 1T: \$/session for EPO and iron (HD only), exclude possible outlier months (i.e., \$/session exceed the 99th percentile) # 2: \$/session for all separately billable (SB) services in bundle 1A (HD only) # 3: \$/session for all SB services in bundle 1C (HD only) # 3E: \$/session for all SB services in bundle 1C (HD only), adjust for measure of prior EPO dose response # 4: \$/session for all SB services in bundle 1C, adjust for type of month (HD only) # 5: \$/month for all SB services in bundle 1C (HD only) # 6: \$/month for all SB services in bundle 1C, adjust for type of month (HD only) # 7: \$/session for all SB services in bundle 1C (PD only) # 8: \$/month for all SB services in bundle 1C (PD only)  <sup>3</sup> The Du Bois formula for body surface area is: $BSA = 0.007184 \times H^{0.725} \times W^{0.425}$ , where H is height in meters and W is weight in kilograms.  <sup>4</sup> Body mass index is calculated as: $BMI = W/H^2$ , where W is weight in kilograms and H is height in meters.			